

**WHAT IS CLAIMED IS:**

1. A method for voltage regulation in an electrical power supply system for a motor vehicle, which contains a supercapacitor (4), wherein in a short-term standby mode (ST), the energy supply for the supercapacitor is refreshed as required in order to maintain a minimum energy supply in the supercapacitor.
2. The method as claimed in claim 1, wherein the energy supply for the supercapacitor (4) is refreshed in the short-term standby mode (ST) when the voltage across the supercapacitor has fallen below a predetermined minimum value ( $U_1$ ).
3. The method as claimed in claim 2, wherein in a long-term standby mode (LT), the energy supply for the supercapacitor (4) is refreshed as a reaction to an activation signal, in order to produce a minimum energy supply in the supercapacitor (4).
4. The method as claimed in claim 3, wherein the activation signal is triggered periodically in time and/or after detection of a predetermined event, in particular the opening of a door of the motor vehicle.
5. The method as claimed in claim 4, wherein a refreshing process for the energy supply in the short-term standby mode (ST) and/or in the long-term standby mode (LT) is ended when the voltage across the supercapacitor (4) exceeds a predetermined maximum value ( $U_h$ ).
6. The method as claimed in claim 5, wherein the energy supply for the supercapacitor (4) is refreshed

by transferring energy from a battery (7) in the electrical power supply system.

7. The method as claimed in claim 6, wherein at the start of the short-term standby mode (ST) and/or of the long-term standby mode (LT), the supercapacitor (4) is discharged down to a predetermined discharge voltage ( $U_h$ ), with the energy which is drawn in the process preferably being transferred to a battery (7) in the electrical power supply system.

8. The method as claimed in claim 7, wherein the short-term standby mode (ST) preferably changes to the long-term standby mode (LT) after a time period of one minute to two months, particularly preferably after about 24 hours.

9. Electrical power supply system for a motor vehicle having a supercapacitor (4), distinguished by a monitoring unit, (6) which is coupled to the supercapacitor and is designed to carry out a method for voltage regulation comprising entering a short-term standby mode (ST), wherein the energy supply for the supercapacitor is refreshed as required in order to maintain a minimum energy supply in the supercapacitor.

10. The electrical power supply system as claimed in claim 9, wherein loads (3, 5) having a high dynamic load component are connected to the supercapacitor (4).